

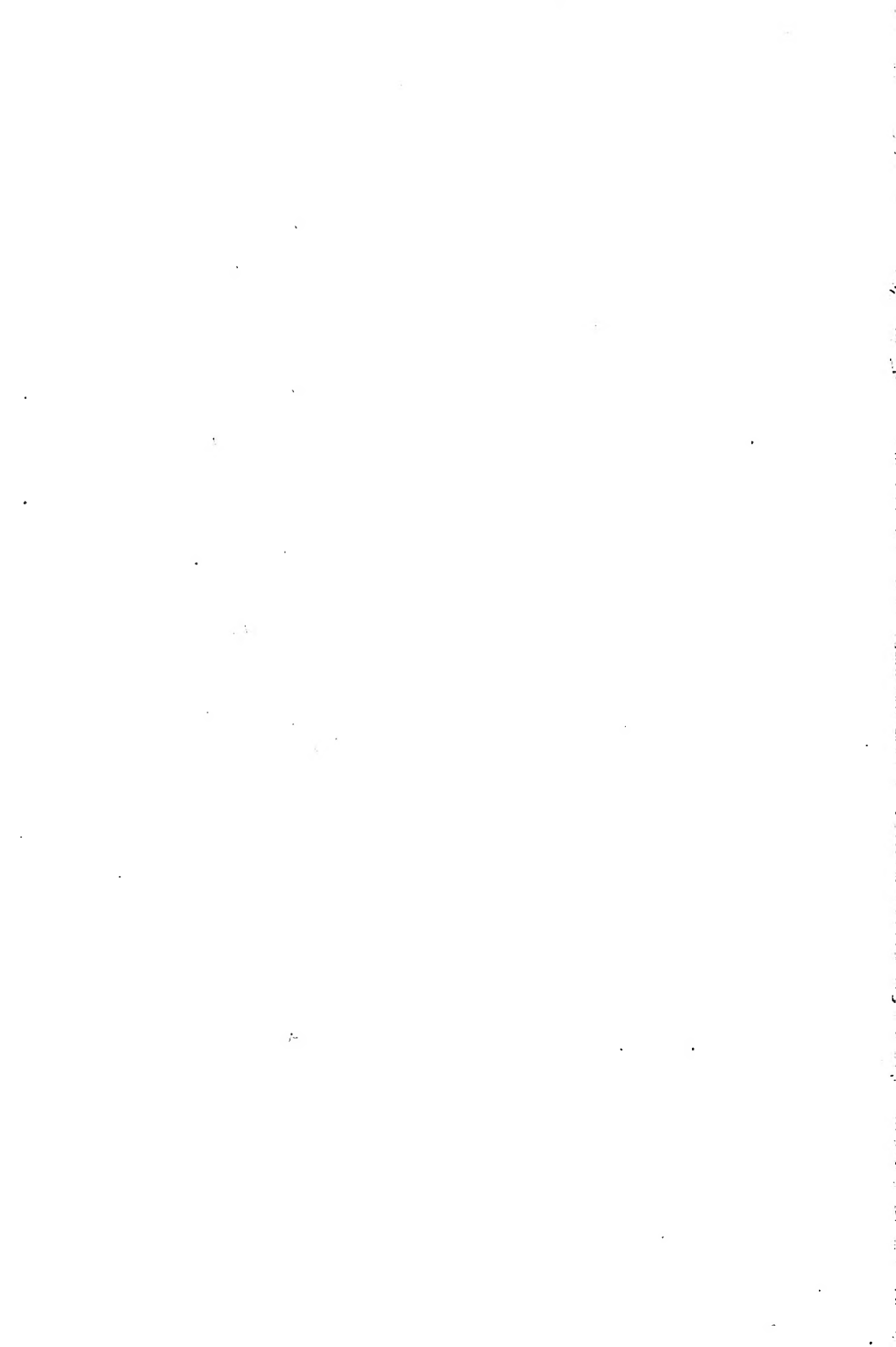
Audio Plus 3200

Hardware Manual



Zoltrix

Leading the world in Multimedia Technology



Audio Plus 3200

Hardware Manual

FCC COMPLIANCE STATEMENT

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio communications, which can be determined by turning the equipment off and on, we encourage the users to try one or more of the following measures:

- * Reorient or relocate the receiving antenna.
- * Move the equipment away from the receiver.
- * Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- * Consult the dealer or an experienced radio/TV technician for additional suggestions.

CAUTION

Any changes or modifications to the equipment by the user not expressly approved by the guarantee or manufacturer could void the user's authority to operate such equipment.

FCC ID. : JZ5SC-60G

WARNING

Only equipment certified to comply with Class B digital devices should be attached to this equipment, and must have shielded interface cables. Operation with a non-certified computer is likely to result in interference to radio and TV reception.

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1. Introduction

1.1. The Audio Plus 3200 Overview

Bringing sound, animation, and digitized video to the PC makes multimedia one of the most exciting technologies around. For multimedia lovers, we offer the best sound boards for your particular needs.

This Audio Plus 3200 provides the supreme sound subsystem for your PC. Combining the latest in sound technology and industrial design, it produces a symphony of sound and functionality never before available on the PC. The Audio Plus 3200 can easily reproduce any kind of sound including the human voice, orchestral music, special effects, ...etc.

The Audio Plus 3200's sampling rate is the best on the market: both recording and playback can use up to 44.1 KHz. It also has a unique feature: a dynamic noise filter which allows this Audio Plus 3200 to produce high quality digital sound. It also comes with a 20 voice FM music synthesizer which is fully AdLib™ compatible, a digitized voice channel, a voice input (sampling) channel, a CD-ROM interface, a MIDI interface and a joystick port all built into one sound board.

It has a built in stereo power amplifier that can drive any kind of small speaker or headset directly. All you need to do is just plug some speakers to enjoy the experience. It comes with a standard joystick port and built in MIDI interface (which contains two modes: MPU 401 UART mode or Sound Blaster™ mode).

The MIDI (Musical Instrument Digital Interface) interface is designed into the joystick port, thus saving a much needed slot on the PC. For those who are getting serious with MIDI, connection to MIDI instruments requires an additional (optional) MIDI cable.

Thank you for your purchase of the Audio Plus 3200 and congratulations on taking your first step into the fabulous multimedia arena.

1.2. General Specifications

1) Compatibility

- ☞ Windows 3.1 compatible
- ☞ Multimedia PC Level Two compatible
- ☞ AdLib compatible
- ☞ Sound Blaster Pro compatible
- ☞ Microsoft Windows Sound System compatible
- ☞ MPU-401 UART mode compatible

2) 20 Voice FM Music Synthesizer

- ☞ OPL III FM synthesizer
- ☞ 20 independent voices

3) Audio Input and Output

- ☞ 16-bit analog to digital and digital to analog converter (ADDA)
- ☞ DMA transfer on channel 0, 1 or 3 (selectable by software)
- ☞ Dynamic noise filter
- ☞ Sampling rates of 4 KHz to 44.1 KHz
- ☞ Stereo recording sampling rates of 4 KHz to 44.1 KHz
- ☞ Microphone direct to amplifier function
- ☞ Digitized music, voice and sound effects
- ☞ PC internal speaker output
- ☞ CD audio input
- ☞ Stereo two channel output
- ☞ Built-in amplifier with 4W output
- ☞ Volume control knob
- ☞ Drives small speakers, headphones or home stereo
- ☞ A-law, u-law ADPCM compatible

4) Stereo Mixer

- ☞ Mixes of all Audio Sources:
Stereo DAC, stereo CD-audio, FM synthesizer, microphone, and PC internal speaker
- ☞ Full software control of microphone mixing and multiple level volume control on:
Digitized sound, FM music, CD-audio, line-in, microphone, master volume

5) MIDI Interface

- ☞ MPU-401 UART mode
- ☞ Sound Blaster MIDI
- ☞ Connect MIDI instruments (MIDI cable or box required)

6) Game Port

- ☞ Supports standard PC joysticks

7) CD-ROM Interface

- ☞ Supports GoldStar, Sony, Mitsumi and Panasonic AT-BUS CD-ROM drives
- ☞ Supports E/IDE CD-ROM drivers

8) Wave Table Synthesizer

- ☞ Supports Wave Table Synthesizer Module (Optional)

9) System Requirements:

- ☞ IBM PC, AT, 386, 486 or higher
- ☞ 512 K RAM for DOS software
- ☞ 2 MB RAM for Windows software
- ☞ CGA, MGA, EGA, VGA or SVGA
- ☞ DOS 3.0 or higher
- ☞ Windows 3.1 or Multimedia Windows Extension for audio function under Windows

2. Installing The Audio Plus 3200

Please follow the instructions in this chapter describing the installation of the Audio Plus 3200 and its bundled software. Your computer system may be built differently and you should refer to its user's reference manual.

Note: Please read the "README" file, for the latest information concerning the Audio Plus 3200 which was not available at printing time. To read the file, type:

README

2.1. Plugging in the Audio Plus 3200

The steps provided below describe the procedure for a typical system. Your system may differ.

- 1) Turn off your computer system, unplug the power cord and remove the top cover.
- 2) Plug the the Audio Plus 3200 into any free slot of the computer.
- 3) Connect the Audio Plus 3200 to stereo speakers or headphones directly (Refer to Chapter 3).
- 4) Due to difference in speaker power, set the volume control of the Audio Plus 3200 to mid-range.
- 5) Replace the top cover and switch on the power.

2.2. Testing the Card

After installing the Audio Plus 3200 in your PC, boot the machine and put the Audio Plus 3200 disk #1 into Drive A and type :

A: TESTSC

The TESTSC software is meant for testing the hardware configuration and functionality of the Audio Plus 3200, including the required settings of the I/O address, interrupt and DMA channels.

After you type [A:TESTSC], the following screen shows:

This program tests various features of the Sound Card.
It detects the base I/O port address and the available
IRQ line and DMA channel you may use.
The default values on IRQ and DMA settings should work fine with
most users. However, if you encountered a conflict problem in
IRQ or DMA setting, please refer to the manual.

Press [ENTER] to continue

At the end of the test, you should be able to hear music playing and a voice talking from your external speakers. This software test will ensure that your the Audio Plus 3200 is properly installed.

If this test fails, please refer to the troubleshooting section. If you can not find the problem, please contact your dealer.

2.3. Installation - Selecting Interrupt Lines

The IRQ and DMA settings are adjusted by software - no hardware changes are needed. After you have installed the card, all you need to do is to run this software. Do so by typing the following line:

```
A:\install
```

This will automatically run the software CONFIG.EXE. Once you enter this software, it will be easy to follow the directions necessary. The software will automatically choose the default IRQ and DMA settings and change your CONFIG.SYS file for you. In this way these values will be loaded for the Audio Plus 3200 each time you boot up your computer. The line added to your CONFIG.SYS file will be:

```
DEVICE=C:\SOUND\SOUND.SYS /I:i /D:d /MIRQ:i /G:0  
/CDT:G /CDP:340 /SSP:530 /M:330
```

Where: /I:i specifies the IRQ to be used, and i can be 7, 9, 10, 11 or 5.

/D:d specifies the DMA channel, and d can be 0, 1 or 3.

/MIRQ:i specifies the MPU-401 IRQ to be used, and i can be 5, 9 or 0 -- disable.

This installation software has been designed for ease of use. It is very rare that you will encounter a hardware conflict. Therefore, after running this software, you should be ready to use the Audio Plus 3200, without having to worry about these settings. However, future hardware changes may create conflicts. The following two sections explain more about this situation. Even if you have no problems, you can still look them over for your information.

2.3.1 Future Hardware Changes

If, in the future, you add a new card and there is a conflict between the Audio Plus 3200 and another card, you can use the CONFIG.EXE (described in detail in Chapter 4) to change the IRQ and DMA settings of the Audio Plus 3200. Remember that if you do change the IRQ and DMA settings, you will need to reboot your computer for the changes to take effect.

2.3.2 What are IRQ's and DMA's?

If you have made changes to your hardware, are having problems with first-time installation, or are just curious, we have provided a brief explanation below of the ways in which computer hardware can have conflicts.

Computers use signal lines, or channels to allow devices to communicate with the main processor. If two devices try to use the same channel to communicate with the CPU or processor, there will be a conflict. There are three kinds of signal lines:

1. **IRQ or interrupt lines** are used when a device notifies the central processor that information needs to be sent or received.
2. **DMA or direct memory access channels** are used to transfer data to memory (as opposed to transferring information to the processor).
3. **I/O or input/output addresses** signify the type of channel that is used to transfer data between devices and the central processor.

When you first install the card into your system, you will use the program INSTALL.EXE to set the IRQ and DMA settings. This program will make sure there are no conflicts. However, adding cards in the future may cause conflicts if any one of the above three conflict with another card. In this case, as mentioned above, you will need to run the CONFIG.EXE software to change the settings (unless you change the settings of the new adapter card).

2.4. Problems Encountered When Installing The Audio Plus 3200

This section will help you if you have already followed the instructions in the installation guide and are still unable to solve your problem. You are probably encountering a problem due to a conflict between various hardware. When installing the Audio Plus 3200, there could be some possible hardware conflicts with other adapter Cards.

The Audio Plus 3200 uses:

- 1) DMA channel 1 as the default channel. Selectable channels: 0,1 and 3.
- 2) Interrupt default at IRQ 7 (used for voice/MIDI operations)
Selectable channels : IRQ5, IRQ7, IRQ9, IRQ10 and IRQ11.
- 3) I/O address : 220H - 23FH as default
Switch may select at 220H or 240H. FM music chip also uses addresses 388H, 389H, 38AH and 38BH. The joystick port uses the standard address of 200-207H.

1) DMA Conflict

The Audio Plus 3200 is default set to DMA channel 1 in order to maintain compatibility with other sound cards. If the playback of digitized sound is not functioning, please ensure no other hardware devices in your system use DMA channel 1 at the same time.

The DMA channel used by the Audio Plus 3200 can be shared with other adapter cards, provided that these cards can share their DMA channel. Alternatively, other cards using DMA could have their DMA channels selectable. In such cases, the DMA Channel on the other card should be moved to either Channel 0 or Channel 3. If this is not possible, use the CONFIG.EXE software to change the DMA and IRQ settings of the Audio Plus 3200.

2) Interrupt Line (IRQ) Conflict

The Audio Plus 3200 uses interrupt line IRQ7 as the default setting. If an interrupt conflict occurs, you can change the interrupt of the Audio Plus 3200 to IRQ5, IRQ9, IRQ10 or IRQ11. See the table on the following page for the best IRQ line to use.

IRQ Level Usage Table

Interrupt	Applications(base on AT machine)
IRQ0	System timer
IRQ1	Keyboard
IRQ2	Video adapter or network adapter
IRQ3	Free or used by COM Port 2
IRQ4	COM Port 1
IRQ5	Parallel printer 2 / May be used by Audio Plus 3200
IRQ6	Diskette controller
IRQ7	Parallel Printer 1 / Default used by Audio Plus 3200
IRQ8	Real-time clock
IRQ9	Video adapter or network adapter / May be used by Audio Plus 3200
IRQ10	Free / May be used by Audio Plus 3200
IRQ11	Free / May be used by Audio Plus 3200
IRQ12	Free
IRQ13	Numeric Coprocessor
IRQ14	Hard Disk
IRQ15	Free

3) I/O Address Conflict

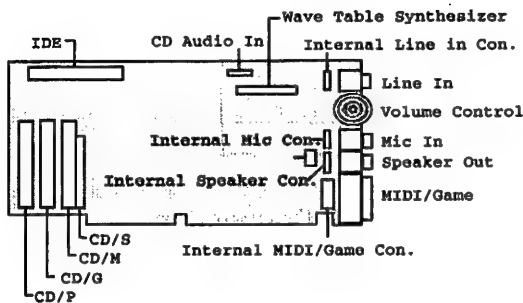
If there is a conflict with another card in your system, we suggest you change the I/O port address of the other card. Remember to re-install the I/O port address for programs running on that card.

The possibility of conflict on the default I/O address of 220H is very small. We advise against changing this I/O port address. Changing from this default I/O address would mean that you have to re-install many software programs that support the **Audio Plus 3200**.

If you are using the MPU-401 mode and the I/O address is 330, a conflict may arise with some popular SCSI adapters.

3. Connecting External Devices

The **Audio Plus 3200** supports CD-ROM drives, MIDI keyboards, microphones, audio devices and joysticks.



3.1. Speaker/Amplifier Connection

You can connect a speaker to the **Audio Plus 3200** output. The **Audio Plus 3200** has an onboard 4 watts stereo amplifier which can drive headphones or low power stereo speakers.

You can also connect the card to a HI-FI stereo amplifier to get higher power, and better quality sound output. To bypass the onboard amplifier, change both jumpers of "Audio Switch" to the position marked "LINE".

3.2. Microphone Connection

You can record a voice through the microphone socket. Just plug the microphone jack into the microphone input socket.

Table: Internal Mic Connector

PIN	Signal	I/O
1	Ground	In
2	Mic in	In
3	Ground	In
4	NC	

3.3. Audio Device Input Connection

The socket marked "LINE IN" can be used to connect external audio devices. Audio devices include cassette player output, power amplifier output or CD-ROM drive audio phone jack output.

Table: Internal Line in Connector

PIN	Signal	I/O
1	Ground	In
2	CD Left Channel	In
3	Ground	In
4	CD Right Channel	In

3.4. MIDI Device (Keyboard) Connection

To play back or record the MIDI file with the MIDI device like keyboard, you can connect the MIDI cable into the MIDI port on the Audio Plus 3200.

3.4.1. MIDI Port and MIDI Cable

To connect the Audio Plus 3200 to a MIDI keyboard (or synthesizer), you need to plug the optional MIDI cable to the joystick/MIDI port. This MIDI cable is required because the standard MIDI IN/OUT plugs don't match the computer interface connectors.

This MIDI cable provides MIDI-IN and MIDI-OUT connectors and one joystick port. You will not lose the joystick port as it is replicated on this MIDI Cable. Connect the MIDI-IN connector to the MIDI output socket on the MIDI keyboard, connect the MIDI-OUT connector to the MIDI input socket on MIDI keyboard.

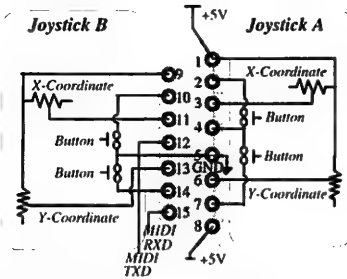
A MIDI cable and MIDI keyboard do not complete the list of what is needed for a MIDI setup. You still need the software designed for MIDI. You can use either MPU-401 or Sound Blaster compatible MIDI software.

MPU-401 is a popular adapter for the P.C. It is supported by many MIDI software packages.

3.4.2. MIDI Port Connector

The MIDI connector is a 15 pin D-Type connector. The MIDI port share the connector with game input device, it is usually joystick, so you need a special MIDI cable to connect the Audio Plus 3200 and MIDI device.

The MIDI connection use three pins of the connector: MIDI receive, MIDI transmit and the signal ground. For details, please refer the MIDI pin connector definition.



MIDI/Joystick Port Wiring Diagram

3.5. Joystick Connection

The joystick port on the Audio Plus 3200 uses an analog joystick with a 15-pin D-Sub connector. It is identical to that on the standard PC Game I/O port and supports any software that uses the standard PC joystick.

This 15-pin connector also serves as the MIDI interface of the Audio Plus 3200. With the joystick port replicated on the optional MIDI BOX, both the MIDI device and joystick can share one slot leaving more room on your PC for other peripheral cards.

3.5.1. Using More Than One Joystick

If you need to run two joysticks from the Audio Plus 3200 Joystick Port, a Joystick Y-Cable is separately available. This Y-Cable separates these 2 joystick pins into 2 connectors for joystick connection.

3.6. CD-ROM Drive Connection

3.6.1. CD Audio-In Connector

The Audio Plus 3200's specially designed, high fidelity audio mixer ties together all the sounds it can tap: CD-audio, sequenced MIDI synthesizers, digitally sampled audio samples, external audio -- and plays them through whatever playback system you want. Then you can mix all of your sound sources and play them together.

The Audio Plus 3200 can also use CD ROM without extra speakers. Using the internal cable, you can connect the CD ROM Audio to the CD Audio-In

connector directly. The Audio Plus 3200 mixes the sound input from CD Audio-in with other music/sound and outputs from it's speaker.

For the location of the Internal CD Audio connector, refer to the tables below:

PIN	Signal	I/O
1	Ground	In
2	CD Left Channel	In
3	Ground	In
4	CD Right Channel	In

Table: Internal CD Audio Connector

3.6.2. CD-ROM Drive Connection

As there is no standard CD-ROM drive interface, The Audio Plus 3200 has on board support for the popular GoldStar, Sony, Mitsumi and Panasonic AT-BUS CD-ROM drive interfaces. It also support the E/IDE CD-ROM drive.

Please notice the direction of the cable. Pin 1 of the Audio Plus 3200 connector must be attached with pin 1 of the cable. Pin 1 is marked on the Audio Plus 3200, and is easily found. Pin 1 of the cable is usually colored with red. **Please notice the position of pin 1 Sony Connector is up side down.** However, it is best to refer to the installation manual for your CD-ROM drive or contact your dealer for the exact position of pin 1. Please also refer to Chapter 4, "CONFIG.EXE" and "CDSETUP.EXE".

3.6.3. Installing a CD-ROM Driver

The CD-ROM driver comes with the CD-ROM drive. Please refer to the installation procedure described in the user's manual of the CD-ROM drive. Two programs are usually needed to make a CD-ROM drive work properly. One is a CD-ROM hardware driver. The other is MSCDEX.EXE. Please make sure you have loaded the hardware driver and MSCDEX.EXE before you start using the CD-ROM drive.

3.7. PC Speaker Connection

The Audio Plus 3200 allows the sound of Audio Plus 3200 to be redirected to PC internal speaker. The installation procedure is:

1. Refer to your PC installation manual to find out the PC speaker connector location. It is usually a two wire connector.
2. Unplug the connector from the PC mother board.
3. Plug it into the Internal Speaker Connector on the Audio Plus 3200.

Be aware that the PC speaker connector is polarized. If no sound comes out after connection onto the Audio Plus 3200, then you may have made the connection in the wrong direction. Change the direction and try again.

Table: Internal Speaker Connector

PIN	Signal	I/O
1	Ground	In
2	CD Left Channel	In
3	Ground	In
4	CD Right Channel	In

3.8. Wave Table Synthesizer Module Connection

The Audio Plus 3200 support an optional Wave Table Synthesizer Module (GMW-1000). This socket is pin compatible with Wave Blaster. Please refer to the installation manual that come with your Wave Table Synthesizer Module.

4. Sound Utilities

4.1. Audio Plus 3200 Testing

Please refer to section 2.2, "Testing the Card" for details.

4.2. SOUND.SYS

The file SOUND.SYS is the device driver for the Audio Plus 3200, and it is automatically loaded when your computer boots. It initializes the Audio Plus 3200 and provides the control of changing the mode of the Audio Plus 3200.

When the installation procedure is complete, the following line will appear in the CONFIG.SYS file:

```
DEVICE=C:\SOUND\SOUND.SYS /I:i /D:d /MIRQ:i /G:0  
/CDT:G /CDP:340 /SSP:530 /M:330
```

Where:

/I:i specifies the IRQ to be used, and i can be 7, 9, 10, 11 or 5.

/D:d specifies the DMA channel, and d can be 0, 1 or 3.

/MIRQ:i specifies the MPU-401 IRQ to be used, and i can be 5, 9 or 0 -- disable.

/G:0 or 1, set 0 to disable joystick port or 1 to enable joystick port.

/CDT:S, P, G or I, CD-ROM type select: S for Sony or Mitsumi, P for Panasonic, G for GoldStar and I for IDE.

/CDP:xxx specifies the CD-ROM Address, xxx can be 300, 310, 320, 330, 340, 350, 360, 370.

/SSP:xxx specifies the Windows Sound System Base Address, xxx can be 530 or E80.

/M:xxx specifies the MPU-401 I/O address, xxx can be 300, 310, 320 or 330.

The other utility programs cannot execute without the SOUND.SYS successfully installed. The exceptions are TESTSC.EXE and CONFIG.EXE, which can run without SOUND.SYS installed.

During the initial process, SOUND.SYS will test the IRQ function according to the /I:i parameter. If this fails, the device driver should fail to load and will display an error message on the screen :

```
IRQ test failed. SOUND.SYS not installed.
```

SOUND.SYS will test the DMA function according to the /D:d parameter. If this fails, the device driver should fail to load and will display an error message on the screen :

```
DMA test failed. SOUND.SYS not installed.
```

4.3. CONFIG.EXE

CONFIG.EXE provides an easy-to-use interface for the user to setup the IRQ and DMA settings. It automatically displays the current settings of your the Audio Plus 3200 and allows you to change the settings by using just the UP, DOWN and ENTER keys. Once you accept new settings, CONFIG.EXE will update your CONFIG.SYS with create or modify the line:

```
DEVICE=C:\SOUND\SOUND.SYS /I:i /D:d /MIRQ:i /G:0  
/CDT:G /CDP:340 /SSP:530 /M:330
```

When exiting CONFIG.EXE, you should reboot your computer for the new settings to take effect.

4.4. Mode Switch

This program allows you to change the mode of your Audio Plus 3200 between the Audio Plus 3200 mode and Windows Sound System mode.

To change your Audio Plus 3200 mode, type

```
GSCMODE /mode
```

Where mode is:

- /SC - Change to Audio Plus 3200 mode.
- /SS - Change to Microsoft Sound System mode.

4.5. CD Player Under DOS

Introduction

CD-ROM drives require two software drivers. They are a hardware device driver and a software device driver. These two drivers usually come together with the CD-ROM drive. Before you can use CDPLAY.EXE, you must install these drivers in your CONFIG.SYS and AUTOEXEC.BAT respectively. Refer to your specific CD-ROM drive user's manual for more detail on installing these drivers.

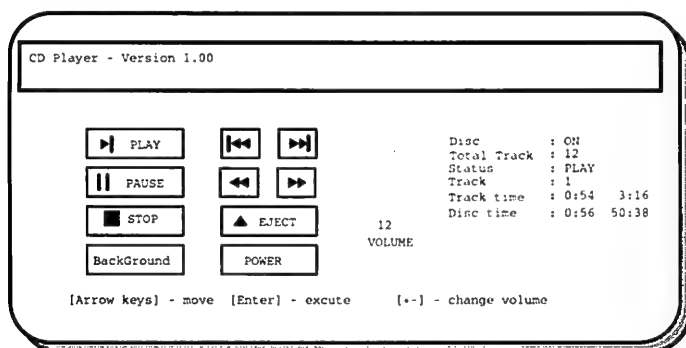
Using CDPLAY for DOS

Once you have installed these two drivers, you can run CDPLAY to control the CD-ROM drive as a CD Player.

To run CDPLAY: Change to your SOUND directory, and type

CDPLAY

You will then see this screen:



To control the CD Player using the mouse, just click on the buttons on the screen that execute the respective functions.

To control the CD Player using a keyboard :

Arrow Keys - Moves the selection to the next button

Enter - Executes a selected button function

[+ -] - Changes CD volume

Description of button functions:

PLAY	-- Starts the CD player.
STOP	-- Stops the CD player.
PAUSE	-- Pauses the CD player until selected again to continue playing.
▶▶	-- Next Track, moves the CD player to the next track.
◀◀	-- Previous Track, moves the CD player to the previous track.
▶▶	-- Fast-forwards the player by 20 seconds.
◀◀	-- Rewinds the player by 20 seconds.
EJECT	-- Ejects / Close the tray.
BackGround	-- Quits the program but continues playing the audio.
POWER	-- Stops the audio and quits the program.

4.6. MIXER.EXE

This is a TSR program used to control the Audio Plus 3200 mixer under the DOS environment. It lets you control the volume of the following :

Mas - The overall volume of each source
Wav - Digitized voice
FM - FM synthesized music
CD - CD-ROM audio in
Lin - Audio line-in
Mic - Microphone

All of the above sources are stereo, except the microphone which is mono.

Installing the MIXER

To load the MIXER into memory, type

MIXER

To activate the installed MIXER, press and hold the **ALT** and **1** keys.

Removing the MIXER

To remove the MIXER from memory, type

MIXER /U

Using the MIXER

Once you have loaded MIXER, the Mixer Control Dialog will pop up when the hot keys are pressed together.

To control the mixer using the mouse, just click on the scroll bar, the check box or the buttons.

To control the mixer using the keyboard:

- TAB - Moves the focus to next item
- Shift-TAB - Moves the focus to the previous item
- Up, PgUp - Increases volume
- Down, PgDn - Decreases volume
- Enter - Toggle checks box or selects a button function

4.7. MIX-SET.EXE

This is a command line program used to control the Audio Plus 3200 mixer.

Usage: MIX-SET /switches

/Q	Run MIX-SET in quiet screen mode.
/H	Display this usage.
/R	Reset mixer.
/M:l,r	Master volume control (l/r = 0 - 15)
/Wav:l,r	Voice volume control (l/r = 0 - 15)
/FM:l,r	FM volume control (l/r = 0 - 15)
/CD:l,r	CD volume control (l/r = 0 - 15)
/Mic:nn	Microphone mixing control (nn = 0 - 7)
/ADCS:xx	Recording source (xx = MIC/CD/LINE)
/Line:l,r	Line volume control (l/r = 0 - 15)

4.8. CDSETUP.EXE

This program provides an easy-to-use interface for the user to set-up CD-ROM drivers. It will update your CONFIG.SYS and AUTOEXEC.BAT files for you. Please also refer to your CD-ROM User's Manual for more information.

5. Using Audio Plus 3200 with other Software

The Audio Plus 3200 has the largest library of supporting software.

5.1. Third Party Software Support

Music/sound drivers are usually included in third party software. Just choose the music/sound card 16 from the install menu or from their given instructions. The sound/music card could be one of the following:

- 1) Sound Blaster Pro II
- 2) AdLib Music Card
- 3) Roland MPU-401 UART Mode
- 4) Microsoft Windows Sound System

5.2. Windows 3.1 Drivers

The Installation program will automatically install Windows 3.1 drivers and applications. However, if you want to install Windows 3.1 drivers manually, please run WSETUP.EXE in Windows.

5.3. Windows Sound System

The Windows Sound System software is an ideal way to enjoy the power of the Audio Plus 3200, while under the familiar Windows environment. After you have installed the software, you will be able to use the following functions: Volume Control, Recording Control, SoundScapes, Sound Control Panel, Music Box, Sound Finder, Quick Recorder and the Voice Pilot.

If you are not sure how to use the software, you can always access the on-line help by either pressing F1, or by clicking on the Help button. Once you have the software installed, try out the Audio Plus 3200 by playing and recording your first sounds.

6. Hardware Information

6.1. I/O Address Map

The Audio Plus 3200 uses the I/O port addresses from 2x0H-2xEH, where "x" is the switch number 2 or 4 depending on the Audio Plus 3200 Base I/O address selected. If the Base I/O is 220, then "x" is 2; if it is 240, then "x" is 4.

FM Synthesizer I/O Table

Port	Function	R/W
2x0H	Left FM music REGISTER/STATUS PORT	Write/Read
2x1H	Left FM music DATA PORT	Write only
2x2H	Right FM music REGISTER/STATUS PORT	Write/Read
2x3H	Right FM music DATA PORT	Write only
2x4H	Mixer Chip REGISTER Address Port	Write only
2x5H	Mixer Chip DATA PORT	Write/Read
2x8H	FM music DATA/STATUS PORT	Write/Read
2x9H	FM music REGISTER PORT	Write only

"x" is the switch number 2 or 4, depending on the Audio Plus 3200 Base I/O address selected: 2-220, 4-240.

DSP I/O Table

Port	Function	R/W
2x6H	DSP RESET	Write only
2xAH	DSP(VOICE I/O & MIDI) READ DATA	Read only
2xCH	DSP WRITE DATA OR COMMAND	Write
2xCH	DSP WRITE BUFFER STATUS (bit 7)	Read
2xEH	DSP DATA AVAILABLE STATUS (bit 7)	Read only

"x" is the switch number 2 or 4, depending on the Audio Plus 3200 Base I/O address selected: 2-220, 4-240.

CD-ROM Drive I/O Port

Port	Function
CDBASE+0	CD-ROM Interface
CDBASE+1	CD-ROM Interface
CDBASE+2	CD-ROM Interface
CDBASE+3	CD-ROM Interface

CDBASE is the CD-ROM Base I/O Port Address.

MPU-401 I/O Port

Port	Function	R/W
3x0	MPU-401 DATA	Read/Write
3x1	MPU-401 STATUS	Read/Write

"x" is the switch number 0, 1, 2 or 3 depending on the MPU I/O port selected: 0-300, 1-310, 2-320, 3-330.

The Game (Joystick) Port I/O Address

Port	Function
200H to 207H	Joystick I/O address

Alternative FM Music Synthesizer I/O Table

Port	Function	R/W
388H	Left FM music REGISTER/STATUS PORT	Write/Read
389H	Left FM music DATA PORT	Write only
38AH	Right FM music REGISTER/STATUS PORT	Write/Read
38BH	Right FM music DATA PORT	Write only

This I/O port is used for compatibility with the AdLib sound card. Its function is the same as the FM music synthesizer port.

The Microsoft Windows Sound System I/O Port

Port	Function
WSSBASE to WSSBASE + 7	I/O address

WSSBASE is the Windows Sound System Base I/O Port.

Appendix

Troubleshooting

This section will assist you in finding the cause of a problem that has been encountered. The following is a list of common questions.

Problem/Question 1 :

The Audio Plus 3200 does not produce any sound.

Answer:

The audio out jack of Audio Plus 3200 is a 1/8" stereo phone plug. It requires 4-ohm/8-ohm speakers or headphones. In addition, your plug may not be connected properly, so check that also.

Problem/Question 2 :

How can I record from a stereo set?

Answer:

The optional stereo cable is for connecting the stereo output jack of the Audio Plus 3200 to the LINE INs of your stereo set. Recording sound from a good microphone should yield good results.

Problem/Question 3 :

Before I install the Audio Plus 3200, do I need to change any jumpers or switches?

Answer:

Most computers use default settings. Try using different I/O port addresses if you encounter any problems.

Problem/Question 4 :

After installing the Audio Plus 3200, I could still hear my old games playing through the internal PC speaker.

Answer:

You need to re-install those games or re-install the Audio Plus 3200. Please refer to the user's guides for those games.

Problem/Question 5 :

Why is there background static noise from the speakers.

Answer:

This is caused by a noisy power supply in the computer system. The Audio Plus 3200 has taken a lot of care in the design of the Audio Plus 3200's built-in amplifier to reduce as much noise from the computer's power supply as possible. For those computer systems that produce too much noise, the only way to reduce the noise is to turn down the volume control. If louder volume is desired, try to amplify using an external amplifier.

Problem/Question 6 :

Joystick port not working.

Answer:

Run CONFIG.EXE to disable Game Port. This problem is a result of two joystick ports conflicting with each other. Use the joystick port in your system instead. The MIDI port is not affected by this action. The MIDI pins are still active on the Audio Plus 3200's joystick port.

Problem/Question 7 :

My joystick is not working in some programs.

Answer:

You could try to switch the computer to its lowest possible speed. This problem is caused by the PC's joystick using CPU timing to calculate the joystick position. When a CPU is too fast, the wrong calculation may cause the joystick port to move to its unusable range.

Problem/Question 8 :

My computer does not work after I run one of the programs included with Audio Plus 3200.

Answer:

This is because the program may conflict with other adapter cards in the system. Remove all cards except diskette/fixed disk controller card and video adapter card in the system. Then run the same program that hangs the computer. If the problem goes away, then the last card removed has a possible conflict with the Audio Plus 3200.

Problem/Question 9 :

Is the Audio Plus 3200's MIDI port compatible with Roland MPU 401?

Answer:

Yes, the Audio Plus 3200 supports both Sound Blaster MIDI mode and MPU 401 UART mode (not intelligent mode, but most software use MPU401-UART mode). Hence, programs that run on the MPU 401 can work directly on the Audio Plus 3200.

Problem/Question 10 :

My computer crashes after I use Audio Plus 3200 MPU-401 mode with my SCSI adapter.

Answer:

Check to see if the I/O address is set to 330. If you are using MPU-401 mode and the I/O address is 330, this may cause a conflict with some popular SCSI adapters. You need only change the I/O address to 300, 310 or 320.

Problem/Question 11 :

When playing certain MIDI files, in Windows, some of the instruments are 'missing'.

Answer:

The MIDI Mapper (accessed via 'Control Panel') is not installed correctly for the file being played. I.E. there are MIDI channels being used in the file that are not routed to the Audio Plus 3200. Refer to the Windows manual for details.

Problem/Question 12 :

When using certain programs - especially shareware ones - I get a message saying "no environment variable" or similar and no sounds result.

Answer:

These programs are expecting an environment variable that Creative Labs' Installation program places into AUTOEXEC.BAT file. The syntax is:

```
set blaster=Awww Ix Dy Tz
```

where

"www" = the port address (usually 220)

"x" = the interrupt level (usually 7)

"y" = the DMA channel (usually 1)

"z" = the board type

so the typical line might be:

set blaster=A220 I7 D1 T4

